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themselves. Others, like the passion for gambling, adventure and ambition, may lead to it, through external circumstances.

As a whole, the book is interesting, clear in its outline, and suggestive, as are all the works of the author, yet one is left with a wish that the general relation of passion to the affective life had received a more fundamental treatment and that the rich stores of material in biography and pathology had been drawn upon more extensively.

THEODATE L. SMITH.

Der Gegenwärtige Stand der psychologischen Forschung, von Prof. Dr. C. Gutberlet in Fulda. Philosophisches Jahrbuch, 21 Band, 1 Heft, S. 1-32.

This article follows the method and outlines of an earlier article by Stumpf, entitled "Richtungen und Gegensätze in der heutigen Psychologie," thus presenting the present status of psychology in the form of its numerous oppositions and conflicting points of view. These oppositions are of different degrees and vary greatly in importance. Briefly outlined they are as follows: An opposition exists between the psychological and the antipsychological or a priori points of view. According to the more moderate advocates of the psychological point of view, psychology is the foundation of only the mental sciences, but according to the stricter defendants it is fundamental to all science, and all judgments which are useful for life are by continuous habituation transformed into constraining propositions, and the a priori reduced a mental experience. Of somewhat less importance is the question whether psychology is to be considered a natural or a mental science and in direct relation to it, the question of whether a substantial substrate of mental activity must be assumed or whether this is an extraneous question and "psychology without a soul" answers all scientific demands.

Conflicting points of view also exist between Spiritualism and Materialism and between Substantialistic and Actualistic psychology, the latter being represented, not only by Wundt and his followers, but

by all opponents of the doctrine of a substantial soul.

The advocates of psychophysical parallelism stand in opposition to the adherents of the doctrine of reciprocal action of mind and body. The parallelists as actualists can admit only states of consciousness as psychological material, since only these are actual while, on the other hand, some psychologists, of whom Lipps is representative, think that psychological processes lie more below than above the threshold of consciousness, only results of activities appearing in consciousness. Prof. Freud now believes that he has found an experimental method of studying the unconscious, which can be applied to hysteria and to dreams. Gutberlet thinks, however, that the expectations raised by Freud's method may be too optimistic, especially since the question involved is connected with Herbart's "freisteigenden Vorstellungen," which are now definitely set aside. Conflicting points of view also exist between Determinism and Indeterminism, and between purely Observational and Experimental psychology. Yet Wundt himself warns against an over doing of experimental methods and denounces especially such work as that of Bühler and Marbe who have sought to investigate processes of thought and judgment through questioning subjects and demanding self-instropection. These so called "Ausfrage" experiments he declares are no experiments at all and the observers have observed nothing.

Different methods of investigation also exist in Subjective and Objective psychology, the former being limited to introspection while the latter investigates the soul life of other beings and includes com-

parative, child psychology, and abnormal psychology. Here belong,

also, hypnotic investigations.

More or less opposition in view-points also exists between Descriptive and Genetic, Pure and Applied psychology. During the last two decades the applications of psychology have been numerous and it has been brought into close connection with pedagogy, psychiatry, jurisprudence, national economy, art and language, research and theology. One of the most recent sensational applications of experimental psychology is the application of the association method in the service of justice. In the October number of McClure's, Prof. Münsterberg gives an account of his experiments with the criminal Harry Orchard. Cohnstaedt has, however, raised serious objections as to the validity of results obtained by this method.

In the more modern psychology are also certain oppositions dependent upon the different directions taken by investigation. These are the oppositions between Phenomenal and Functional psychology, between Nativism and Empiricism, Atomistic and Unitary, Voluntaristic and Non-voluntaristic, Apperception and Association, Normal and Abnormal psychology.

Theodate L. Smith.

Die Cellularphysiologische Grundlage des Gedächtnisses, von MAX VERWORN. Zeitschrift der Allgemeinbiologie, Vol. 6, 1906, pp. 118-139.

Ueber die materiellen Veranderung bei der Assoziationsbildung, von Geh. Medizinalrat Prof. Dr. Goldschrider in Berlin. Neurologisches Centralblatt, Vol. 25, 1906, pp. 146-157.

Both Verworn and Goldscheider look upon "nerve-paths," whether of memory, association, or habit, as nutritive effects of functional exercise. In nerve-cells, as well as in muscle or gland-cells, the catabolism of exercise is followed by the anabolism of rest, which not only restores the cell to its original size and strength, but increases its somewhat. Within limits, the exercise of the function creates the mass of the cell. The millions of undeveloped cells in the brain would develop if only they were sufficiently exercised.

This increase in the mass of the protoplasm in the cell results in greater instability and in a correspondingly heightened power of functional discharge. A large cell discharges more powerfully than a small one for the same reason that a large amount of gunpowder produces a greater explosion than a small amount. Because of its greater instability, the large cell has a lower threshold and is there-

fore more easily discharged than is a small unexercised one.

At birth the cortical cells are yet embryonic. Sensory cells are the first to be exercised by incoming stimuli. In the beginning they lack the size and strength necessary to discharge into the adjacent cells with sufficient intensity to set off the latter. Exercise confers the power to break through the cell-separation and to discharge the next cell in the chain; its discharge causes it to grow through exercise until it also has acquired the capacity to discharge a still further one in the chain; and so on indefinitely. Thus association chains are formed. The "paths" which impressions leave in the nervous system are therefore only increased growth-effects in the exercised elements. The "path" is the line of least resistance through the developed cells of low threshold and high power of discharge. The impulse once started along the line cannot run off into other previously unexercised cells because of their higher threshold and their lower power to carry forward the impulse to further cells.

These "traces" are latent for consciousness so long as the cells are at rest; but if any stimulus whatever starts the chain of discharges,